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ABSTRACT

Technical aids and information technology are the subjects of this document, one of 9 modules in an 11-unit resource pack designed to help trainers and postsecondary and continuing education staff meet the needs of special needs students in Great Britain. Having completed the module, staff should be able to: (1) identify technical aids; (2) include the use of technical aids by learners in a course or training program; (3) show how technical aids can help learners with special needs gain access and participate; (4) identify the main uses of information technology (IT) in training and teaching; (5) choose appropriate computer-assisted learning (CAL) software packages to meet special needs; and (6) use two strategies for the application of CAL in a course or training program. The module explains the value of IT for special needs students and how to evaluate CAL programs. For special needs learners, it is recommended that programs should: contain minimal text with clear layout; facilitate instruction recall to the screen with single-key input; contain safeguards for error input so that mistaken input by the student does not result in a program's crashing; contain uncluttered and accurate graphics; allow easy input; permit variation in acceptable language input responses; include simple procedures for modifying the program; and provide for alternative peripheral input, such as joystick, light pen, thumb switch, and touch screen. Appendixes include: an outline of the process to assess study aids and strategies; checklists for context, technical needs, equipment, resources, and learner's needs; a sample questionnaire for obtaining checklist data; and an example of a self-profile used to ascertain the learner's perception of needs. (CML)

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LEARNING SUPPORT

TECHNICAL AIDS AND INFORMATION TECHNOLOGY

7

CE 055 195

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INTRODUCTION

Some learners with special needs require additional or modified equipment to gain access to, and to participate in, learning programmes. Examples include aids to communication and attachments to tools or machinery. The growth of awareness in this area together with developments in technology have combined to provide a variety of specialist resources for such learners. Teachers and trainers should be aware of these developments, but equally, knowing where and how to get advice is also vital. Computer-assisted learning packages have opened up many possibilities for individualising learning materials but there are dangers of them being used as substitutes for teaching/ training. These packages should be used to support learning. Being able to judge their value and choose appropriately, are essential skills.

KEY QUESTIONS

- What are technical aids?
- How do you identify and employ appropriate technical aids?
- What is information technology?
- What is information technology for?
- What is its use/value for learners with special needs?
- How do you use CAL?
- How do you recognise good quality CAL?

AIMS

- To explore the nature and type of technical aids.
- To examine their availability and appropriate usage.

OBJECTIVES

By the end of this element you should be able to:

- show what technical aids are;
- include the use of technical aids by learners in your course/training programme;
- show how technical aids can help learners with special needs to gain access and participate;
- identify the main uses of information technology in training/teaching;
- judge and choose appropriate CAL packages to meet special needs;
- use two strategies for the application of CAL in your training/teaching situation.

TECHNICAL AIDS

WHAT ARE TECHNICAL AIDS?

Technical aids is a broad term which covers the whole range of equipment which can enable learners with special needs to gain access to, and participate in, a course/training programme.

In Element 6, **Design and Adaptation of Learning Materials**, we identified alternative ways of presenting information and stimulating active learning. For some learners those may not be enough; their special needs may be beyond such materials. Specialised technical aids can provide the extra support which learners need.

Examples

For a learner with impaired hearing, a sound loop system could be valuable. A learner with cerebral palsy lacking fine motor skills could be aided by a concept keyboard.

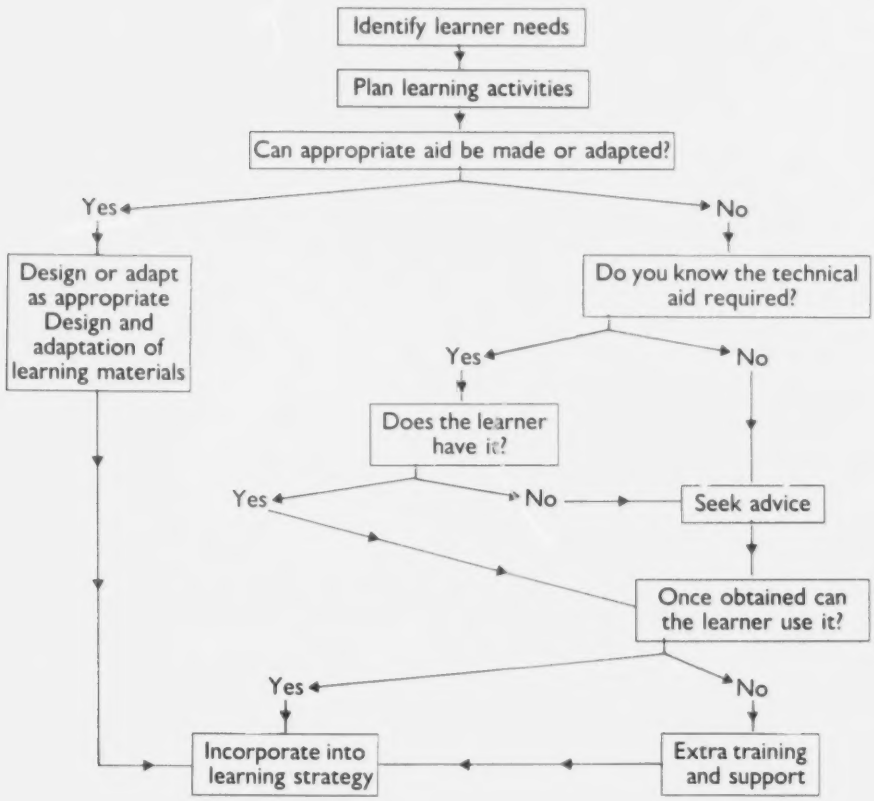
The range of aids is so vast that it is impossible to describe here. Indeed it would be inappropriate, because in suiting an individual need it is vital that the exact match is made.

HOW DO YOU IDENTIFY AND EMPLOY APPROPRIATE TECHNICAL AIDS?

For the learners, technical aids may be a necessary part of their participation in all aspects of a course/training programme. It is important for you to remember, however, that they are *aids*, and they are simply there to support learning, not to represent an end in themselves; as such they need to be taken into account during the planning and delivery of the learning process as with other resources.

FLOW CHART

The following flow diagram shows the issues which you need to take into account



SIGNPOST
Element 9. **Sources of Help and Advice**

This process follows the same pattern as for the use of learning materials. It also specifies that if you cannot cater for the particular needs yourself you should seek advice from elsewhere. Don't be stuck – there are limits to what you can do.

SIGNPOST
References and bibliography in Element 9.

WHAT IS I.T. FOR?

In education and training, information technology (IT) is being used in a number of ways. Two have particular relevance.

- **Computer-managed learning** or CML refers to the use of information technology to manage the whole learning process. Elements such as student records, assessments, profiles, course/programme information can all be collected and applied using fairly simple hardware and software.
- **Computer-assisted learning** or CAL describes the use of computer systems to assist directly in the learning process. It is generally used to cover all uses of computers in learning (apart from CML). Some programs simply imitate traditional techniques, e.g. drill and practice, tutorial. Others, such as simulation and problem solving, are sometimes better suited to computers.

To save confusion we use CAL although there are many related terms which amount to much the same thing:

	ASSISTED	Instruction
	Aided	LEARNING
COMPUTER	Based	Education
		Training
	Enhanced	Teaching

(from *Information Technology Support Systems for Education and Training* FEU, 1987).

WHAT IS I.T.'S USE/VALUE FOR LEARNERS WITH SPECIAL NEEDS?

We focus attention here on CAL. Again it must be emphasised that information technology offers another means of support for learners. It provides a range of alternative or substitute strategies for learning but it still needs to be managed and incorporated into the overall planning and delivery of a course/training programme.

The evidence (*Information Technology and Work Preparation courses for Slow Learners in Further Education Colleges* CET, 1987) suggests that using microcomputers with learners with special needs enhances:

- motivation
- concentration
- reinforcement
- the creation of a good working atmosphere
- group work
- basic skills work
- responsibility for learning including taking initiative

SIGNPOST
In Element 5, **Training/ Teaching and Learning Strategies**, and Element 3, **Devising Individual Learning Programmes**, it is shown that many of the above features sometimes present difficulties when working with learners with special needs.

These features of learning are enhanced because of the novel and interactive nature of good quality CAL packages, which enable learners to become involved directly with their own learning.

Above all, these packages capture the imagination of many learners, who may have failed or been failed through using other approaches.

HOW DO YOU USE CAL?

The range of CAL packages is so vast that the possible uses are huge. Much depends on what packages you have access to and what type of hardware you are able to use. These are largely resource issues, not dealt with in detail here. Instead, we focus on two broad strategies for use.

1. LEARNING PARTICULAR SKILLS OR KNOWLEDGE

This involves using a CAL package as an imitator or substitute for traditional teaching/training techniques. Many packages provide drills and skills activities, which enable learners to work at their own pace to gain a full knowledge of (say) vocabulary or number. Keyboard skills can be learnt directly (or indeed indirectly), while simulation and problem solving packages provide a focus for group work. Project work can engage the learner in using word processing and database packages. Experience in this is useful in itself.

In each of these examples other resources could be used to achieve the same ends. In this sense CAL is to be seen as another resource, an alternative way of stimulating learning and providing access to a wider curriculum/training programme. It is important to choose that resource which best suits the individual need of the learner. The perils and frustrations of using a keyboard can impede progress. Conversely, the freedom offered by this different medium can be a strong motivation.

2. INTEGRATED LEARNING

This involves using information technology to enhance the learning of a group. Here are some examples from the CET project report.

Example 1. Making a newspaper

'Desktop publishing allows a group of students with learning difficulties to produce a college or a course newspaper. This could not be achieved with anything like the success using other resources; the end result, especially when a desktop publishing program is used together with graphics packages, is so stunning as to provide a very powerful new motivation in the students.

Moreover, this motivation produces several surprising results.

First, the programs themselves are usually complex and were seen at the start of the project as being beyond the intellectual range of the students being trained. This proved not to be the case – within each of the ten groups, a sub-set of students worked their way through the programs successfully and acted as editors or layout artists for the entire group. Since normal word processing files can be fed into the program system disk, and since each student could easily master a word processor, each student could contribute to the final result.

Second, the students were able to operate a genuine working unit, taking the crucial decisions themselves in editorial meetings. Deadlines were set and those behind in their work would be persuaded by other students to work harder. The group would decide which articles should be accepted, and which rejected. The group would decide on who should do each job – they were able, within an assignment such as this, to realise each other's strengths and weaknesses and capitalise on this new understanding.

Each of the ten colleges involved eventually used desktop publishing software and each intends to use it systematically in the future. One college has renamed the Core Area of Communications "The Newspaper" since they are so convinced that this is the most effective means of dealing with the communications objectives.'

Example 2. Work experience projects

'Some of the colleges run intensive work experience projects lasting up to several weeks. Two of these merit individual mention – the Retail Option at Derby College and the Crafty Students of Warminster project at Trowbridge College.

The Derby project was focused on the making and selling of wooden items such as garden benches, tables and bird tables. Previously, the staff had dealt with most of the servicing aspects of the work and had been in charge of ordering the materials; dealing with orders for purchase; sales, etc.

5

Using the computer, the students were able to be far more heavily involved in the complete cycle of small business operation. Using spreadsheets, they were able to itemise monthly figures on purchases and sales. Using databases, they were able to enter orders and to pinpoint the items needed to be made at a particular time. Using a word processor, they were able to deal with letters to customers.

In each of these cases, the work was significantly enhanced. Without the software packages the students would not have been able to handle information retrieval involved in this side of the work.

The lecturers' conclusion at Derby was clear – the students were able to feel far more involved in the whole process of business and not restricted to their normal role of factory hand. This greater involvement led in turn to a greater sense of pride in the overall operation and a much more motivated and professional performance.

The Trowbridge project involved the setting up of a small firm, "The Crafty Students of Warminster", which was based in an annexe of Trowbridge College in the nearby town of Warminster. Here, the principles adopted at Derby were extended and the uses of IT even more comprehensive.

It was announced to the students that the course was having an "Industrial Fortnight" and that this would centre on the making, painting and selling of garden gnomes. To do this, the course team had ordered moulds for the purpose and had been given permission to take over the Warminster Annexe. The students were told to apply for jobs at the 'factory' and to write out their CVs and letter of application on a word processor. The jobs included factory workers, office workers and canteen workers.

Having applied for these jobs, each student was interviewed by the local careers officer and this was videoed and analysed afterwards.

During the project itself, the computer was used for:

- stocktaking: using spreadsheets as at Derby
- orders: using databases as at Derby
- letters to customers: using word processors
- factory notices: using desktop publishing programs
- time sheets: using spreadsheets
- a factory news-sheet: using desktop publishing programs

The project – timed in the run-up to Christmas – was extremely successful. The gnomes were sold at local market stalls and the fortnight resulted in a significant profit. Because of the success of the project, the work continued sporadically throughout the year with the "company" diversifying into other garden-related items such as paving stones.

As at Derby the lecturers felt that the IT input was of the greatest importance since it "lifted" the experience of the project. It helped create an atmosphere which was more realistic and more tied to the actual working practices of a small company.

In this way, the curriculum was not determined by the use of the computer – but it was immeasurably enhanced.'

In each of these examples individual skills are developed, but they are expanded, related and applied to a much broader set of processes and outcomes.

HOW DO YOU RECOGNISE GOOD QUALITY CAL?

There are two answers to this question.

1. There is a growing amount of information available on software that has been used successfully with learners with special needs. Agencies such as the National Council for Educational Technology (NCET), Special Education Microelectronics Education Resource Centres (SEMERCs) and FEU all publish lists of appropriate software (see **References and Bibliography** in Element 9). However, two major problems exist with these:

   - the amount of software being developed is considerable, thus such lists may quickly become out of date;

- it is not always possible to judge from the description if a piece of software will suit the particular needs of an individual learner. (Indeed learners may develop unexpected skills as a result, which were not initially objectives of using the software.)

2. Find out for yourself.

The following is a do-it-yourself kit to help you judge CAL packages.

Microcomputers are becoming increasingly simple to use. Trying out CAL programs helps you to learn and makes you more able to support your own learners. Expertise with technology is also growing, so you may have colleagues who can assist if you don't feel proficient yourself. However, remember that you will ultimately have to include the package in your course/training programme and use it with learners. Above all – don't panic. (Your machine will not blow up! The worst that can happen is that the program will 'freeze' and the easiest way to deal with this is to remove the disk from the drive, switch everything off and start again. You will not have broken the machine.)

Three main features of any package need to be looked at:

- Does it suit the needs and interests of the learners and yourself? Considerations here include:
  - appropriateness of aims and objectives
  - clarity of supporting material (documentation)
  - suitability for age (16+) and ability level
  - type of learning strategy used in package
  - extent of learner involvement (creating/responding)
- Does it work? Considerations here include:
  - clarity of the screen display
  - appropriateness of images (graphics)
  - pace and timing of displays
  - flexibility
  - provision of on-screen help
  - 'crash potential' – can it be made to fail?
- What equipment can it be used with? Considerations here include:
  - capability of being used with specific adaptations (say, for those with poor motor skills)
  - possibility of getting printed copy of work
  - suitability for use with equipment you have

EXERCISE 1. ASSESSING COMPUTER PROGRAMS TO AID LEARNING

Small group activity

As with any other learning aid, it is important to judge the value of computer packages. This activity provides a detailed exploration of CAL packages.

Guidelines for facilitators

1. For this activity you will need appropriate equipment and a range of CAL packages to try out.
2. If you use it over several sessions then you can build up a bank of questionnaires which in themselves become a useful resource.
3. Participants should work through the questionnaire to test out each package.
4. Further explanation of the questions is to be found in the **Assessment criteria** (Page 11).

Methods

Use the following Program Assessment Questionnaire.

Test out a software package by answering the questions posed. (If you require further explanation of any of the questions, read the Assessment Criteria Rationale appended.)

PROGRAM ASSESSMENT QUESTIONNAIRE

Name of program _____

1. Description of program/package.

2. Are the aims and objectives of the program stated? Y☐ N☐
   State

3. Is the accompanying documentation provided? Y☐ N☐
4. Were the skill areas clearly stated in the documentation? Y☐ N☐
5. Was the documentation adequate for your needs? Y☐ N☐
   How does it need modifying?

6. Are the tasks to be performed clearly stated in the documentation? Y☐ N☐
   Comment.

7. Are complementary materials provided? Y☐ N☐
   Comment

8. Are the prior attainment levels to enable the learner to use the program stated? Y☐ N☐
   Comment

9. Are there suggestions for associated activities to support the program? Y☐ N☐
10. How would you classify the program/package in terms of learning strategy?
    Tick one or more of the following:
    - Drill and practice ☐
    - Word processing ☐
    - Simulation ☐
    - Framework program ☐
    - Vocabulary/language development ☐
    - Database ☐
    - Game program ☐
    - Numeracy ☐
    - Text manipulation ☐
    - Other ☐

    Additional comments

11. Was the screen display easy to read? Y☐ N☐
If no, why was this so?

12. Was the program easy to use? Y☐ N☐
If no, why?

13. Is the program crashproof, i.e. can it be made to fail? Y☐ N☐
If not, why?

14. Are the graphic representations appropriate? Y☐ N☐
Comments

15. Can learners recall instructions/menu at any time throughout the use of the program? Y☐ N☐

16. Does the learner control the timing of frame presentations? Y☐ N☐
Comment

17. Did the program provide a sufficiently wide range of options for your learners' needs at varying ability levels? Y☐ N☐
Comment

18. Did the program provide sufficient flexibility for your requirement? Y☐ N☐
Comment

19. Is the program accurate in the presentation of its concepts? Y☐ N☐
Comment

20. Is the language level used within the program appropriate to the ability level? Y☐ N☐
Comment

21. Does the program accept variations in learner response? Y☐ N☐

22. Are simple procedures available for modifying the program? Y☐ N☐

23. Is a facility provided for use of a peripheral? Y☐ N☐

Please state peripheral:

24. Are results of responses recorded by the program? Y☐ N☐

If so, how?

25. Is the program printer dependent? Y☐ N☐

State make of printer

26. Would the program benefit from printer dependency? Y☐ N☐

27. How do you consider the program can best be used?

- Teacher/trainer demonstration
- Individual learner
- Teacher/trainer and learner together
- Pairs/small groups
- Other _____

28. Would the program blend into existing activities? Y☐ N☐

Why?

29. Were the aims and objectives achieved (if stated)? Y☐ N☐

How?

30. Was the program better than alternative (non-electronic) ways of achieving the same objective? Y☐ N☐

Why?

31. Do you consider the program to be of value to 16+ learners with special needs (consider alternative benefits)? Y☐ N☐

Why?

32. Further comments

Source of questionnaire – Blackpool and the Fylde College

ASSESSMENT CRITERIA

Field testing has suggested the need for explanation of selected points – these follow below.

Aims and objectives of program/package

(The numbering of points corelates with those of the Program Assessment Questionnaire. Not all numbers are represented.)

2a. **State the aim(s) of the program.**

2b. **State the specific objectives relevant to the skill area.**

Stated aims and objectives should enable you to make informed decisions on whether, and how, to use a program with learners. A general description of the program content can be misleading and it is desirable that aims and objectives are clearly stated. Question also whether the objectives are achievable through the use of a particular item of software.

2c. **Attempt to identify alternative learning objectives.**

In special education one often finds that a program designed for one purpose turns out to be more useful for a skill area not specified. A program designed to reinforce concepts of space, direction and estimation may also present itself as a powerful aid to group interaction, development of group co-operation and language development.

3–7. **Documentation in support of program/package**

Off-screen documentation

The documentation accompanying a program should state the educational aim(s) and objectives, state simply and clearly the tasks to be performed by the learner and explain how these are to be accomplished. It should suggest and preferably provide complementary materials and propose a variety of associated activities. It should also indicate what prior attainment levels are required.

On-screen documentation

For learners with special educational needs, minimal text with clear layout and, possibly, enlarged characters is most desirable. Instructions should be pitched at the same level as the main body of the program to enable learners complete independence of access and operation. The learner should be able to recall instructions with a single key input to counteract short-term memory impairment.

10. **Learning stategy adopted by program/package**

10(a). **Drill and practice**

Programs are usually designed to be used by individual learners. The learner sits at the keyboard, waits for a question, types her/his response and thus reputedly improves her or his skill in a given area. This mode of computer-assisted learning is often justified by reference to the infinite patience of the computer.

10(b). **Problem solving through simulation**

The learner is provided with a programmed model which is designed to guide the learner along a variety of predetermined routes which should aid in developing the desired problem solving process. The subject matter and/or underlying theories are progressively revealed as the learner progresses through the simulation. Alternatively a structured yet open-ended format whereby the learner progressively selects or inputs data which the program assimilates, leads the learner on to uncover the patterns and principles of problem-solving strategies.

10(c). **Vocabulary/language exercises**

Several of this type of program have a gaming element which often relieves their repetitive format. They present an aid to language and vocabulary practice rather than initial learning.

10(d). **Grammar-based/structural activities**

Passages of text can be stripped of their punctuation, prefixes or suffixes, and the user attempts to restore the text to its original form. This type of program is designed to reinforce sound, basic English practices.

10(e). **Text manipulation**

Often incorporating cloze procedure in sentence or passage form. The learner may input the passage him/herself; so text manipulation in its simplest form provides a foundation for word processing.

10(f). **Word processing**

This can constitute an extremely useful tool and an important aid to literacy. A learner with poor writing style can gain tremendous satisfaction from producing his or her work in printed fair copy. Furthermore, the learner can edit original attempts to produce a document without the tedium of rewriting.

10(g). **Framework programs**

Framework-formatted programs present you with a versatile tool wherein the framework provides the basis on which individual learning programs can be created without prior knowledge of BASIC programming language. These programs could be regarded as particularly valuable for 16+ learners as language content is open ended and can be programmed specifically to their interest and ability level.

10(h). **Database**

A system whereby learners may set up their own files of information which the computer is able to sort and provide selective printouts from. Databases provide a useful store of information for individual/group projects.

10(i). **Game programs**

Often with striking audio/visual effects, yet of very little educational/training value. They may be used to provide incentives to learners to improve their co-ordination/motor skills through the keyboard.

10(j). **Numeracy programs**

Programs that range from the presentation of number identification to standard practice in the four rules. Many numeracy programs have a game element whilst others are based purely upon the drill and practice strategy.

10(k). **Adventure/discovery programs**

Interactive programs which may offer a blend of learning strategies which the learners must identify and use appropriately to achieve a hidden goal.

Quality of program/ package

Reliability and accuracy in presentation of concept(s)

The reliability and accuracy of software is a major determinant of its acceptability for use. When an unexpected input produces a nonsensical software output, a learner may experience a sense of frustration or failure and be unable to accept that the fault lay with the program's unexpected behaviour.

13. **Safeguards to error input (crashproof)**

Input keys not in use should be disabled by the program to avoid accidental incorrect input. BREAK and ESCAPE keys should be redefined to prevent accidental exit from the program.

14(a). **Balanced screen display with minimal text exposure**

Minimal text with clear uncluttered layout and enlarged character is most desirable. Thoughtless use of colour can render a screen display virtually unreadable, e.g. white on yellow.

14(b). **Appropriate and accurate graphic representation(s)**

Graphics representation should be relevant to the subject matter; a screen boasting a melee of graphics may be gratifying for the programmer, yet distracting and confusing for the learner.

14. and 15. **Ease of user input**

Particularly when a program is supported by a game element, it is not unknown for the keys identified by the program as up/down/left/right input to be spread across the keyboard

so as to make it physically impossible to succeed, even before taking into account the fine motor difficulties experienced by some learners with special needs.

18. **Flexibility in providing a range of options to cover a variety of ability levels**

Programs should give you full control over the difficulty levels, timing of task performance and duration of on-screen displays to allow for (a), reading difficulties, and (b), learner/teacher/trainer discussion of learner input. (16. Progression of frame display should preferably be learner controlled.)

19. and 20. **Language levels appropriate to learning concept(s) and/or to identified ability level**

The language level of the program should be pitched at the level of the skill area presented. There are several examples of commercially available software which require a reading age of 12+ to comprehend operating instructions for a program geared to a reading age of 9+.

21. **Variation in acceptable language input responses**

If a program requires a vocabulary input from the learner, alternative answers, for example car, motor, motor car, should all be accepted as legal input by the program. Rejection of a perfectly legal input because of inferior programming could lead to learner disenchantment. Both upper- and lower-case letters should be acceptable.

22. **Are simple procedures available for modifying programs?**

It is often necessary to amend lines so that a program, initially designed for primary children, will be acceptable to 16+ learners. A program which makes provision for data line access increases its flexibility substantially as the vocabulary can be tailored to accommodate:

a) individual learner needs;
b) group projects.

23. **Alternative peripheral input**

Few programs offer alternative peripheral input for learners who are physically incapable of accessing software through the standard keyboard. However, attempts have been made to allow access through:

- joystick
- concept keyboard
- light pen
- keymaster (pedal control/headset control)
- large overlay board
- thumb switch
- micromike
- pressure pads
- mouse
- turtle
- touch screen

24. **User input records for diagnostic assessment**

Several programs, particularly those adopting a drill and skill strategy, store a record of learner responses which can be called up during or after a session enabling you to identify specific areas in need of remedy.

26. **Printer dependency for hard copy**

The motivational factor involved in enabling learners to print out their work in hard copy should not be underestimated. Co-ordination difficulties can render a good piece of writing illegible; programs providing printer dependency offer learners the opportunity to produce what may possibly be the first examples of fair copy that the learner finds acceptable.

27-31. **Curriculum method and practice.**

1. These are perhaps the most fundamental elements of effective computer-assisted learning. Will the software blend in to or affect current curriculum/training programme activities and the needs of 16+ learners with special needs? Will the programs support it, enhance it, extend it or change it? If computer-assisted learning is to be used effectively then

it must be used appropriately – that is, where it offers alternative learning opportunities. It should:

- be used to provide teaching and learning opportunities which could not easily be made available by other means;
- be identifiable for user group size/application;
- provide an additional motivating factor in the learning process.

The variety obtained by using a combination of different teaching styles, supported by selected software items could increase learner motivation, and retain enthusiasm and interest in learning.

Does the program really provide an interactive experience for the learner? Is the learner involved or does he press one key repetitively to operate the program?

In this element we have concentrated on CAL packages. These are the most numerous and readily available aspects of information technology in teaching/training. But there are many others emerging such as electronic mail, videotex and interactive video, which open up yet more possibilities. The **References and Bibliography** at the end of Element 9 will assist you in finding out more.

APPENDIX. ASSESSING FOR TECHNICAL AIDS

There are seven items in this appendix which are intended to give you an indication of the way in which individual needs can be assessed and met through the provision of technical aids. This process is used by Access centres, established in various parts of the country, whose role is to provide guidance on appropriate technical aids to support individual learners.

These items will help you to understand the issues and the processes involved in identifying needs and matching equipment to meet them.

Once decided, the individual learner will need training in the use of aids. This can also be provided. (See Flow chart on page 3.)

ITEM 1. A GENERAL OUTLINE OF THE PROCESS

STUDY AIDS AND STUDY STRATEGIES ASSESSMENT

A format for assessments

Assessment of external students will generally take one full day. The morning session is largely taken up by a discussion of the student's present circumstances, his/her plans for the future and main study needs, and by consideration of the effects of the student's disability including handwriting and typing speeds.

The lunch break gives an opportunity for selecting items of equipment for the student to try during the afternoon session, when, if possible, a practical study situation can be arranged to assess the most suitable communication aid and to give an opportunity to discuss study strategies.

The day should be concluded by a resume of the day's experiences and by the selection of suitable equipment. The following pages give a check-list to be used as a guideline during an assessment and a suggested structure for producing the final report. This should be sent to the student in the first instance for comments and amendment before being sent to the referral agency.

(from North West Regional Access Centre)

ITEM 2. CONTEXT CHECK-LIST

A check-list for identifying the context in which the learner is working – used to identify general needs. (For use by Access Centre staff)

STUDY AIDS AND STUDY STRATEGIES ASSESSMENT

Check-list

- Schooling
- Study environment
- Courses
- Interests – academic and general
- Future plans re: Further and higher education, open learning, training, employment
- Entry qualifications/skills required
- Future course plans
- Agencies involved in future plans – adequacy of support
- Previous assessments and agencies involved
- Functional effects of disability
- Student perception of issues
- Associated study difficulties, e.g. mobility, care support

ITEM 3. TECHNICAL NEEDS CHECK-LIST

A check-list to identify the technical needs of the individual in relation to the work he or she wishes to undertake.

Main study needs summary:

- Writing — equations, special symbols, essays, letters
- Presentation — subscript, superscript, tables
- Drawing — diagrams, flow charts
- Graphs — bar charts, line graphs, histograms
- Calculations — including scientific calculator
- Note taking — library, lecture, private, home
- Practicals — field trips, experiments, cookery, photography, art, etc.
- Examinations — extra time, amanuensis, use of equipment, pair of hands, transcription facilities, speed writing, etc.
- Numeracy
- Literacy
- Verbal communication

ITEM 4. EQUIPMENT AND RESOURCES CHECK-LIST

A check-list to identify technical needs in relation to equipment and resources available.

Handwriting issues – speed, fatigue, presentation

Equipment currently used

Keyboarding

- Seating and posture
- Nature of keyboard activity
- Switch system
- Appropriate part of body for switch use
- Positioning of equipment

Equipment constraints

- Existing system
- Cost
- Portability
- Aesthetics/personal taste

Availability of technology support at college – named person

Availability of student (care/classroom) support at college

- Funding applications
- Speech aid
- Low tech aids
- Environmental aids
- Further study strategies

ITEM 5. LEARNER'S NEEDS CHECK-LIST

A check-list which provides the basis for the report on the learner's needs and how they might be fulfilled.

STUDY AIDS AND STUDY STRATEGIES ASSESSMENT

Suggested report structure

Page 1: Name, address, telephone number, date of birth, nature of disability, assessment date, aims, objectives, referral agency.

Student profile

Summary of study needs

Writing

Keyboarding

Equipment currently used

Equipment tried at assessment – itemise and include brief description of system and evaluation in relation to needs.

Alternative study strategies

Other issues

Conclusions and recommendations might include:

- Board reasons for micro-based study aid
- System recommended
- Any alternative input device
- Software
- Training requirements in relation to equipment
- Insurance
- Rolling fund
- Course study recommendations
- Study support requirements
- Additional exam requirements

Equipment prices

ITEM 6. SAMPLE QUESTIONNAIRE

The questionnaire used to ascertain the information contained in the check-lists.

ACCESS CENTRE-APPLICATION FORM

1. SURNAME (block letters) FIRST NAME(S)

_____ _____

2. DATE OF BIRTH: _____

3. POSTAL ADDRESS: _____

_____

_____

TELEPHONE: _____

4. LOCAL EDUCATION AUTHORITY: _____

5. LAST SCHOOL ATTENDED: _____
(with dates) _____
_____

6. LAST FURTHER EDUCATION/TRAINING ESTABLISHMENT ATTENDED:
(with dates) _____
_____
_____

7. DETAILS OF EXAMINATIONS:
Already taken:

Exam Body	Subject	Month/Year	Level	Grade

To be taken:

Exam Body	Subject	Month/Year	Level	Grade

8. WERE ANY SPECIAL ARRANGEMENTS MADE FOR YOU TO TAKE EXAMINATIONS?
IF SO, PLEASE GIVE DETAILS:

_____
_____
_____

9. DETAILS OF EMPLOYMENT OR WORK EXPERIENCE (with dates):

Nature of employment	Name & address of employer	Dates

10. WHAT IS YOUR PRESENT OCCUPATION? _____
_____
_____

11. WHAT IS THE NATURE OF YOUR DISABILITY? _____

_____

_____

12. DO YOU (i) MAINLY TYPE?
(ii) MAINLY WRITE? _____

13. DO YOU USE ANY COMMUNICATION AID AT THE MOMENT?

IF SO PLEASE GIVE DETAILS. (Include details of its disadvantages)

_____

_____

_____

14. DO YOU USE A WHEELCHAIR? YES/NO

IF YES, IS IT HAND-PROPELLED/ELECTRIC?

15. DO YOU EXPERIENCE ANY FURTHER DIFFICULTIES AS A CONSEQUENCE OF YOUR DISABILITY WITH:

HEARING – slight/moderate/severe
SEEING – slight/moderate/severe
SPEAKING – slight/moderate/severe
WRITING – slight/moderate/severe
LIFTING – slight/moderate/severe

16. ARE THERE ANY OTHER DIFFICULTIES WHICH YOU THINK IT MIGHT BE HELPFUL FOR US TO KNOW ABOUT?

_____

_____

_____

17. PLEASE INDICATE YOUR MAIN INTERESTS IN THIS COURSE:
(tick those appropriate)

i) Assessment for communication aids
ii) Information on communication aids available
iii) Training for use of communication aids
iv) Short-term loan of equipment
v) Study skills for further education
vi) General information on access to further and higher education
vii) Any other – please give details

_____

_____

_____

18. ANY FURTHER INFORMATION YOU CONSIDER RELEVANT TO YOUR APPLICATION:

_____

_____

_____

_____

_____

_____

_____

COMMUNICATION AIDS ASSESSMENT COURSES STUDENT SUPPORT REQUIREMENTS

1. **CARE**

	Needs help (detail)	*Independent*
Morning		
Getting out of bed		
Bathing/personal care		
Dressing		
Toilet		
Wheelchair		
Meals		
Carrying food		
Carrying drinks		
Eating (including aids used)		
Drinking (including aids used)		
Night		
Bathing/personal care		
Undressing		
Getting into bed		
Turning		

2. **MOBILITY**

Wheelchair user	YES/NO
Manual/electric	YES/NO
Walks unaided	YES/NO
Walks with help	YES/NO

ITEM 7. AN EXAMPLE OF A SELF-PROFILE

This is used to ascertain the learner's perception of needs.

SELF-PROFILE: STUDY SKILLS

Please write in the boxes.

Name

Today's date

The space below is for a sample of your writing. You will be given something to copy.

Please leave this box blank.

Typing sample to be attached. You will be given something to copy.

Please answer each question by putting a tick in one of the boxes.

1. I mainly ..... write ☐ ..... type ☐

2. My writing speed is ..... satisfactory ☐ ..... slow ☐

3. I ..... can ☐ ..... cannot ☐ use all fingers of both hands

4. I ..... would ☐ ..... would not ☐ find typing tuition helpful

5. My writing/typing looks ..... good ☐ ..... satisfactory ☐ ..... poor ☐

6. You may tick more than one box for this question
   - I have no problems physically organising my work ☐
   - I have problems putting work in order in a file ☐
   - I have problems setting up a typewriter/computer ☐
   - I have other problems organising my work ☐

The problems are:

7. I find note-taking in class ..... satisfactory ☐ ..... difficult ☐

8. You may tick more than one box for this question

   For my Education studies I need:
   - a) ..... a typewriter ☐ and I own one ☐
   - b) ..... computer/word processor ☐ and I own one ☐
   - c) ..... microwriter ☐ and I own one ☐
   - d) ..... expanded keyboard ☐ and I own one ☐

e) ..... switch system ☐ and I own one ☐

f) ..... speech aid ☐ and I own one ☐

g) ..... cassette recorder ☐ and I own one ☐

h) ..... brailler ☐ and I own one ☐

i) ..... Braille 'n' Print ☐ and I own one ☐

j) ..... others? ☐

In this box please give the NAME or MAKE of any typewriter, computer, word-processor, switch system or speech aid which you own or have used.

I have also used:

..... keyboard ☐ and I own one ☐

..... Bliss system ☐ and I own one ☐

..... book rest ☐ and I own one ☐

..... head pointer ☐ and I own one ☐

..... mouth stick ☐ and I own one ☐

..... hand pointer ☐ and I own one ☐

..... trolley ☐ and I own one ☐

adjustable/adjusted table ☐ and I own one ☐

I have also used:

9. I ..... do not ☐ ..... do ☐ know of any other communication aids which I would like

I would like:

10. I ..... do not ☐ ..... do ☐ have difficulties with speech

My difficulty is:

11. I ..... do not ☐ / ..... do ☐ have difficulties with sight

My difficulty is:

12. I ..... do not ☐ / ..... do ☐ have difficulties with hearing

My difficulty is:

13. I ..... do not ☐ / ..... do ☐ have other difficulties

These difficulties are:

14. You may tick more than one box for this question

I ..... have not ☐ / ..... have ☐ had special arrangements made in the past for examinations

I have been given a) ..... word processing facilities ☐
b) ..... typing facilities ☐
c) ..... amanuensis ☐ (dictated answers)

☐ minutes extra per hour
d) ..... Extra time ☐ minutes extra per exam
e) ..... Rest periods ☐

f) Other arrangements were made. These arrangements were:

15. My future plans include

..... being in employment ☐

going to a local college of further education ☐

going to a local polytechnic or university ☐

..... doing something else ☐

I should like to:

16. I ..... have no ☐ / ..... do have ☐ further suggestions about the study support I need

I should like to comment that:

Thank you for your help.

SUMMARY

EVALUATION CHECK-LIST

Can you:

- state what technical aids are?
- include the use of technical aids by learners in your course/training programme?
- identify main uses of information technology in training/teaching?
- use two strategies for the application of CAL packages?
- judge the usefulness and appropriateness of CAL packages for learners with special needs?

ORGANISATIONS PROVIDING FURTHER INFORMATION

Further Education Unit
2–6 Orange Street, London WC2H 7WE

National Council for Educational Technology
3 Devonshire Street, London W1N 2BA.

Microelectronics Education Support Unit
Advanced Technology Building, Science Park, University of Warwick, Coventry CV4 7AL

ACE Centre
Ormerod School, Waynflete Road, Oxford OX3 8DD

National Federation of Access Centres at:

Hereward College, Coventry
North Herts. College, Letchworth
Bridgend College of Technology, Bridgend
Grantham College, Grantham, Lincs.
Oldham College, Lancashire
Polytechnic of Central London

Special Needs Microelectronics Resources Centres (SEMERCs) at:

Manchester SEMERC – Manchester Polytechnic, Hathersage Road, Manchester, M13 0JA
Newcastle SEMERC – Newcastle Polytechnic, Coach Lane Campus, Newcastle upon Tyne, NE7 7XA
Bristol SEMERC – Bristol Polytechnic, Redland Hill, Bristol BS6 6UZ
Redbridge SEMERC – Dane Centre, Melbourne Road, Ilford, Essex

Scottish Council for Educational Technology
Dowanhill, 74 Victoria Crescent Road, Glasgow G12 9JN

CALL Centre (Communication Aids for Learners in Lothian)
University of Edinburgh, 4 Buccleuch Place, Edinburgh EH8 9JT.

SIGNPOSTS

Links to other elements include the following:

SIGNPOST
Element 9. **Sources of Help and Advice**

SIGNPOST
Element 3. **Devising Individual Learning Programmes**

SIGNPOST
Element 5. **Training/ Teaching and Learning Strategies**

EMPLOYMENT DEPARTMENT GROUP
TRAINING AGENCY

Skill
NATIONAL BUREAU FOR STUDENTS WITH DISABILITIES